

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Ryoichi OHKURA et al.**

Serial No.: **Not Yet Assigned**

Filed: **June 1, 2001**

For: **SUBSTRATE CLEANING SYSTEM**

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

June 1, 2001

Sir:

Prior to the calculation of the filing fees of the above application, please amend the application as follows:

IN THE CLAIMS:

Please amend claims 4, 6, 8-10 and 12 as follows:

4. (Amended) The substrate cleaning system according to Claim 1 or 2, wherein the carry-in section Aa and the carry-out section Ab have substrate holding sections 60 for holding carriers in which a plurality of substrates are stocked in a horizontal state with a given alignment pitch in a vertical direction, and an elevation positioning unit 61 for positioning the substrates to be carried in or out from the carriers 56.

6. (Amended) The substrate cleaning system according to Claim 1 or 2, wherein the transport robots 70 in the robot booth B are formed of a twin arm robot each provided with a pair

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of hand sections 70a, 70b movable vertically and horizontally, and wherein one of hand sections transports the substrate before they are subjected to a cleaning treatment while the other hand section transports the substrate after they are subjected to the cleaning treatment.

8. (Amended) The substrate cleaning system according to Claim 1 or 2, wherein the robot booth B has a substrate reversing unit 71 which turns each substrate upside down on its front and back face.

9. (Amended) The substrate cleaning system according to Claim 1 or 2, wherein corrosion resistance coating treatment is applied to the inner wall surface of the processing booth C with vinyl chloride resin and oxidation resistance painting treatment is applied to the other wall side of the processing booth c.

10. (Amended) The substrate cleaning system according to Claim 1 or 2, wherein a sheet-type substrate cleaning chamber 10 in the processing booth C is provided with a plurality of circular processing baths (85 to 88) which are aligned vertically, and comprises a chamber body 80 which moves vertically, and a substrate rotating unit 81 which is disposed concentrically with the chamber body 80 at the center and rotates a piece of substrate horizontally while supporting it horizontally, and wherein the substrates supported by the substrate rotating unit 81 and the circular 48 processing baths (85 to 88) are positioned when the chamber body 80 moves up and down vertically.

12. (Amended) The substrate cleaning system according to Claim 10, wherein the chamber body 80 comprises a chemical supply section 91 for supplying cleaning solution onto a substrate surface supported by the substrate rotating unit 81, an inert gas supply section 92 for supplying inert gas so as to discharge and exchange cleaning solution, and a drain section provided in each processing bath so as to drain cleaning solution or inert gas in each processing bath.

REMARKS

The above amendment is believed to place the claims in proper condition for examination.
Early and favorable action is awaited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event there are any additional fees required, please charge our Deposit Account No. 01-2340.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 4, 6, 8-10 and 12 have been amended as follows:

4. (Amended) The substrate cleaning system according to [any of Claims 1 to 3] Claim 1 or 2, wherein the carry-in section Aa and the carry-out section Ab have substrate holding sections 60 for holding carriers in which a plurality of substrates are stocked in a horizontal state with a given alignment pitch in a vertical direction, and an elevation positioning unit 61 for positioning the substrates to be carried in or out from the carriers 56.

6. (Amended) The substrate cleaning system according to [any of Claims 1 to 5] Claim 1 or 2, wherein the transport robots 70 in the robot booth B are formed of a twin arm robot each provided with a pair of hand sections 70a, 70b movable vertically and horizontally, and wherein one of hand sections transports the substrate before they are subjected to a cleaning treatment while the other hand section transports the substrate after they are subjected to the cleaning treatment.

8. (Amended) The substrate cleaning system according to [any of Claims 1 to 7] Claim 1 or 2, wherein the robot booth B has a substrate reversing unit 71 which turns each substrate upside down on its front and back face.

9. (Amended) The substrate cleaning system according to [any of Claims 1 to 8] Claim 1 or 2, wherein corrosion resistance coating treatment is applied to the inner wall surface of the processing booth C with vinyl chloride resin and oxidation resistance painting treatment is applied to the other wall side of the processing booth c.

10. (Amended) The substrate cleaning system according to [any of Claims 1 to 9] Claim 1 or 2, wherein a sheet-type substrate cleaning chamber 10 in the processing booth C is provided with

a plurality of circular processing baths (85 to 88) which are aligned vertically, and comprises a chamber body 80 which moves vertically, and a substrate rotating unit 81 which is disposed concentrically with the chamber body 80 at the center and rotates a piece of substrate horizontally while supporting it horizontally, and wherein the substrates supported by the substrate rotating unit 81 and the circular 48 processing baths (85 to 88) are positioned when the chamber body 80 moves up and down vertically.

12. (Amended) The substrate cleaning system according to Claim 10 [or 11], wherein the chamber body 80 comprises a chemical supply section 91 for supplying cleaning solution onto a substrate surface supported by the substrate rotating unit 81, an inert gas supply section 92 for supplying inert gas so as to discharge and exchange cleaning solution, and a drain section provided in each processing bath so as to drain cleaning solution or inert gas in each processing bath.